

ELAN-Volt[®]

Impregnating Resins for
High-Voltage Rotating Machines –
Energizing Your Business

The background of the slide is an abstract composition of numerous thin, flowing lines of light in shades of gold and orange. These lines originate from the bottom left and fan out towards the top right, creating a sense of dynamic movement and energy. The overall effect is reminiscent of a high-speed light trail or a stylized representation of electrical current.

Impregnating Resins for
High-Voltage Rotating Machines –
We Want to Keep You Ahead

Established Expertise and a Spirit of Innovation –



When requirements are stringent, experience provides the foundation for quality and progress. To us, this is more than just a basic principle, it is the philosophy and aspiration against which we measure ourselves and our company on a daily basis.

Impregnating resins for high-voltage applications have always been an integral and essential business area for our company. To keep things that way, our comprehensive Research and Development Program invests significant amounts of time and resources into building up and developing this area. That is why ELANTAS has played a major role in shaping the global impregnating resins market for more than 100 years, including over 40 years as one of the leading high-voltage resin suppliers for the world's rotating-machine market. These facts and our long-term understanding

of chemistry have allowed ELANTAS to create a global application, testing, and supply group specifically focused on the HV rotating electrical machine market.

As a result of this, our customers in a wide range of markets are able to supply powerful, durable, and therefore reliable, products that have been guaranteeing their success for decades. Now we are taking a systematic approach to this success.

ELAN-Volt® is a single product line that forms the basis upon which to network our comprehensive expertise and continue to develop it. We keep our customers in mind at all times, which enables us to offer them highly tailored solutions featuring the highest possible quality – today and in the future.

Dr. Guido Forstbach
Division President ELANTAS Electrical Insulation

Are Our Formula for Ingenious Success

Innovative product development at ELANTAS is closely linked to the current and future needs of our customers. This requires a high level of annual expenditure into research, which is a core commitment of ELANTAS. This investment enables ELANTAS to extend its development and involvement in the global impregnation process of high-voltage rotating electrical machines.

The creation of our own purpose-built impregnating and test facilities around the world staffed with highly knowledgeable electrical engineers has allowed ELANTAS to move to a different level of customer solutions for existing and new resin technologies. Our experts are specialists in their specific areas and know all about the advantages, applications, and chemistry of our products.

This entitles us to combine chemistry and applications. Throughout our global organization, we aim to “provide the best technological solution in combination with consistent customer and service orientation.”

With one of the broadest product portfolios of formulated resin systems for high-voltage impregnation, including epoxies, unsaturated polyesters containing monomers, nonvolatile unsaturated polyesters, and new hybrid resin technology, along with new in-house application and testing laboratories, ELANTAS is able to support its customers during the whole process of selecting and testing compatible insulating materials, leading to a superior, high-quality end product. This spirit of innovation and activity has given rise to ELAN-Volt®

as a dedicated product series, helping us to steadily improve the products concerned and ensuring that we continue to build successfully on our 40+ years of high-voltage impregnation history.



Dr. Christian Przybyla
Chief Technology Officer
ELANTAS Electrical Insulation

When Demands Are High –

The reliable production and use of energy has become a more important factor in our modern, highly technological world. Energy has become an indispensable lifeblood. Whether it is for private, commercial, or industrial use, energy is an existential, basic human need that provides the basis for a functioning society.

But the production of the energy society needs is not the only important thing; its problem-free distribution and efficient use by consumers are also crucial. The logical consequence

of this is that the demands on companies responsible for this are growing almost daily. In this context, the three factors of **supply, efficiency, and reliability** play a key role and are basically the principal criteria for today's energy supply and use. This is a responsibility that we take very seriously, which is why we continuously strive to improve and develop our relevant products.

We Provide Solutions to Industry

With more than 40 years of experience, ELANTAS, one of the world's leading suppliers of impregnating resins, is playing a key part in satisfying the primary requirements of modern high-voltage rotating electrical machines. The proof is that numerous customers from our main fields of high-voltage electrical machines, such as **manu-**

facturers of high-voltage generators and industrial drives, have been successfully using our resins for over four decades in order to produce durable and reliable products for their markets. Responding to the market developments and demands, we have gathered together our modern high-voltage impregnating resins in one **unique product series**.

This allows us to create pioneering, application-specific solutions that meet our customers' toughest and most demanding requirements, especially in the details. The result? Products that carry an unmistakable signature. We're proud of them.



Every Industry Faces Its Own Challenges –

We Always Provide the Right Formula.

At any voltage, the quality and performance requirements that impregnating resins have to fulfill are exceedingly high, so as to exclude potential sources of danger from the outset. But in high-voltage use, these demands become many times greater. It's a challenge we relish.

Resins for high-voltage use must be reliable so that results are consistent. They also have to be fully compatible with the

insulation materials used in a system. ELAN-Volt® resins meet these criteria, ensuring an enhanced, stable, and repeatable process. For this reason, and also because of their outstanding processing characteristics, our unique range of ELAN-Volt® products are designed to fulfill even the toughest requirements of the high-voltage rotating machine industry – today and tomorrow.

One of the key success criteria in achieving the high quality of our ELAN-Volt® product series is our company's expertise in the field of specialized chemicals. The technical knowledge we have amassed over the decades within

the ELANTAS Group provides the basis on which we have always been able to develop a broad portfolio that combines tried-and-tested chemicals with new and innovative ones. That is how we are able to find, for every one of our customers,

not only the right solution, but the best one, tailored precisely to that customer's personal profile of requirements.

The comprehensive ELAN-Volt® product series includes a wide range of products with the following chemistries:

- Catalyzed epoxy
- Anhydride cured epoxy
- Monomer-based unsaturated polyester and polyesterimide
- Nonvolatile unsaturated polyester and polyesterimide
- Hybrid resin technology



Leading Features for Your Applications –

With Maximum Compatibility.

Every industry and area of use has its own particular requirements that have to be observed and upheld. Whether this is in power generation or industrial drives quality, performance and extended life cycles are at a premium.

Using the ELAN-Volt® product series, we always aim to achieve the best possible result for our customers using an immense diversity of technical properties. It doesn't matter

where the focus is in each case; we always adapt perfectly to the particular unique environment of each individual customer. Maximum compatibility is hence a key quality of our products and ensures that our customers can easily and reliably combine the outstanding quality of the ELAN-Volt® product series with their existing systems.

The technical properties of ELAN-Volt® in brief:



Voltage Ranges

This range of ELANTAS impregnating resins is specifically designed for vacuum pressure impregnation of insulation systems in the ranges of 3.3 kV to 15.0 kV.



Insulation System Compatibility

ELANTAS impregnating products have been found to be compatible with flexible and mica insulation products available from all major suppliers.



Dry-Taped and Hybrid Coil Structures

These resins are well suited to the processing of both dry-taped and hybrid constructions that result in an enhanced and reliable insulation system.



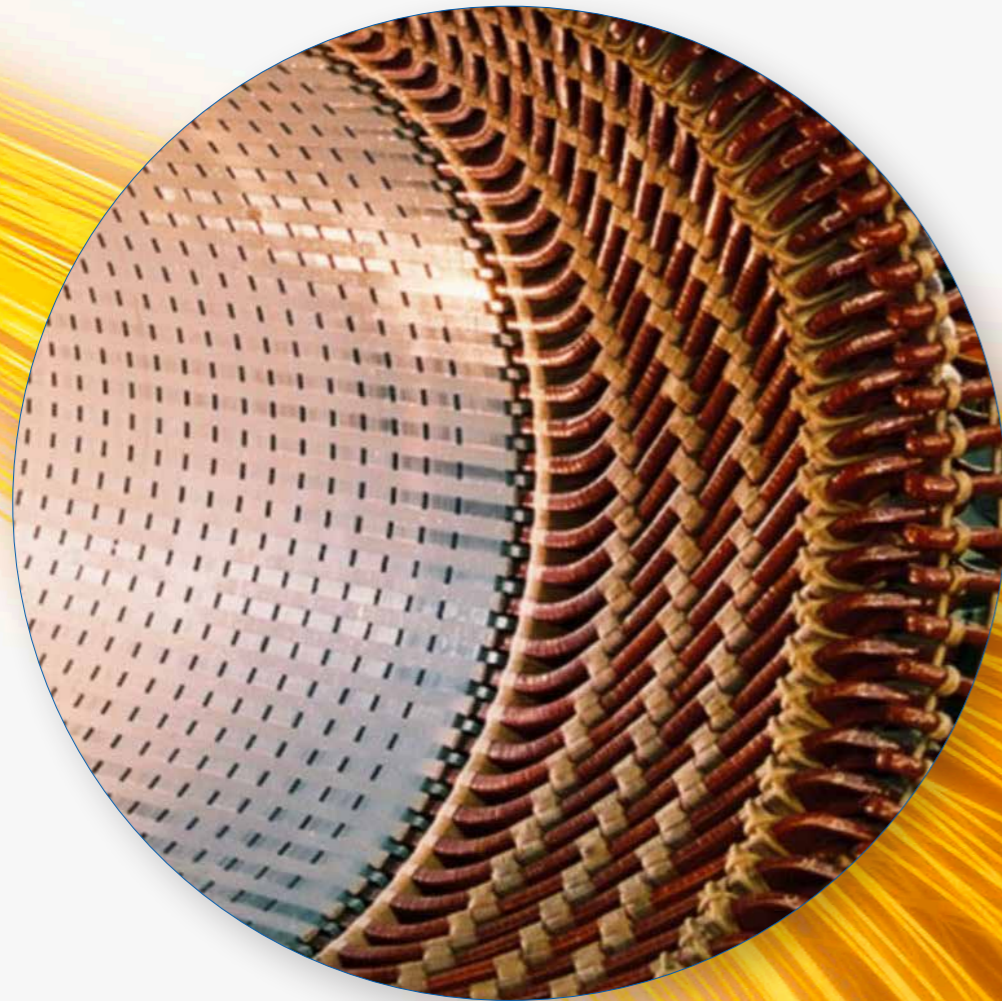
Test Regimes

Product evaluation and system compatibility tests have been carried out across our varied product range using globally accepted international standards.



Multiple Range of Product Chemistries

Utilizing the strength and depth of ELANTAS' chemical knowledge and expertise we can offer a complete range of product chemistries.



Customer Focus Is the Starting Point –

For Our Innovation.

Wherever our innovative solutions and products are used, ELANTAS sales and support is available to you – directly on-site or as required. We can act as your development partner, an innovative problem solver, a reliable supplier – or of course as an expert ally, working closely at your side with our expertise, advice, and help. Whatever you need, we're there for you, and that is how we understand being close to the market – close in a way you can fully experience.

Often you have to work closely with a particular contact person to achieve perfect results. This is someone who knows every specification in detail and knows your particular demands at all times, responding with the utmost diligence and quality. That is precisely what we offer – worldwide.

With its worldwide network of highly professional laboratories and ultra-modern research and development centers, ELANTAS can offer the ideal infrastructure globally and regionally, enabling us to turn our understanding of customer service into a tangible benefit for our customers on a daily basis.






Our strategy is based on a "Full Service" approach: the key differentiator will be our consulting role in the early-stage design process of our customers – we call this role "**Design Partner**". Furthermore, we have built a selected and dedicated **Global Portfolio** that allows us to meet the critical requirements of our customers. And finally we have set up a **Global-Local** approach – acting locally with high customer

intimacy and using our global potential for sharing and transferring. We have built up HV application and service labs in Europe, America, and Asia, supporting our customers with the strongest local expertise. The local know-how is strengthened and supported through a worldwide technical network facilitated by dedicated, specialized, and global R&D resources.

So, wherever you are in the world, we can offer services and product quality that make the crucial difference in the end.



Support and evaluation services offered by our worldwide network:

-  Tank Stability Tests
-  Electrical Property Testing
-  Impregnating Trials
-  Mechanical Property Testing
-  Insulation System Compatibility Test

Sustainability and Responsibility –

Are More than Just Two Words for Us.




If, like ELANTAS, you aspire to play a globally leading role in developing and producing insulating resins, then you have to be ready to take the responsibility that comes with the job. Not only for the products themselves, but for every single one of your employees, and of course the environment. Accordingly, our three main targets are:


- **Safety**
Technical and organizational measures and training programs contribute to enhancing work safety and anchor the issue firmly in our employees' minds.

- **Resource Efficiency**
This means developing products with less impact on our environment by taking the whole life cycle into account: from the choice of new raw materials through to sustainable disposal.

- **Customer Orientation**
This means being focused on the best solution for our customers: high-quality products and the best service to achieve a balance between economic, ecological, and social aspects.

Using this as a basis, we have summarized our responsibility at ELANTAS. We consider this our direct duty toward our customers. Conscientious handling of resources is our responsibility and our personal promise to you.

-  Quality Management Systems
-  Occupational Health and Safety Management Systems
-  Environmental Management Systems

-  Health Promotion Programs
-  Integrated Product Development
-  Employee Development Programs
-  United Nations Global Compact
-  Sponsor of Social Projects
-  EcoVadis Sustainability Rating, Gold Status





Americas

ELANTAS PDG, Inc.
ELANTAS Isolantes Eléctricos do Brasil Ltda.

Europe

ELANTAS Europe

Asia

ELANTAS Zhuhai Co. Ltd.
ELANTAS Tongling Co. Ltd.
ELANTAS Malaysia Sdn. Bhd.
ELANTAS Beck India Ltd.

For further information visit:

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